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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,649	01/13/2005	Wei Wang	18558	9355

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EXAMINER	
HOLT, ANDRIAE M	
ART UNIT	**PAPER NUMBER**
4133	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/521,649	WANG ET AL.	
	Examiner	Art Unit	
	Andriae M. Holt	4133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/24/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-12 are pending in the application. Claims 1-12 will be examined on the merits.

Priority

Priority to PCT/CN03/00747 filed on September 4, 2003, which claims priority to Chinese Foreign Application No. 02141799.1 filed on September 5, 2002 is acknowledged.

Information Disclosure Statement

Receipt of Information Disclosure Statement filed on March 24, 2005 is acknowledged.

Claim Objections

Claim 7 objected to because of the following informalities: misspelling of the word "powder" in line 3 of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Massmann (WO 01/08492) in view of Hu et al. (CN 1,340,508).

Applicant's Invention

Applicant claims a process for preparing solid ammonium glyphosate by extraction with an organic solvent. Applicant claims the process of adding glyphosate and water into a normal reactor, introducing gaseous ammonia for the reaction to obtain aqueous ammonium glyphosate solution after the reaction is complete, characterized in that the organic solvent is added into the reaction solution. Applicant claims the solid ammonium glyphosate is obtained by crystallizing and filtering in suction.

Determination of the scope of the content of the prior art

(MPEP 2141.01)

Massmann et al. teach a process for preparing a downstream ammonium glyphosate paste, comprising mixing in a suitable vessel (i) particulate glyphosate acid, (ii) ammonia in an amount of about 0.8 to about 1.23 moles per mole of glyphosate acid (claim 8, mole ratio of ammonia to the glyphosate, instant invention) and (iii) water in

amount of about 10% to about 25% of weight of all materials being mixed in the vessel, thereby causing a reaction of the glyphosate acid and ammonia that generates heat causing partial evaporation of the water, and forms an ammonium glyphosate paste having a moisture content of about 5% to about 20% by weight (page 6, lines 7-13). Massmann et al. further teach the water present in a glyphosate acid composition and/or in an ammonia composition added as ingredients in the mixing step is included in the 10% to 25% by weight of water specified (page 7, lines 5-7) (claim 7, dry powder content more than 90% by weight, instant invention). Massmann et al. teach where no other ingredients are included the present processes require for each 100 parts by weight of glyphosate acid, about 12 to about 37.5 parts by weight of water (page 7, lines 9-11) (claim 7, weight ratio of glyphosate to water, instant invention). Massmann et al. teach in example 3, page 20, lines 10-25, a process of the invention using gaseous anhydrous ammonia, where the mixing step is operated as a batch process. A jacketed planetary mixer was used for the mixing. Massmann et al. teach the glyphosate acid in the form of wet cake having 11% moisture content (claim 7, undried powder, water content 5-20%, instant invention) was added to the planetary mixer in an amount of 400 g, together with 25 g water. Massmann et al. teach the gaseous anhydrous ammonia in the amount of 50g was added over a period of 3 minutes. Massmann et al. further teach the heat of reaction of the glyphosate acid and ammonia caused evaporation of water, resulting in the ammonium glyphosate paste having moisture content of about 10% by weight. Massmann et al. further teach a 1% aqueous solution of ammonium glyphosate prepared from this paste was found to have a pH of 4.0, indicating a degree of

neutralization very close to 1 (claim 9, pH, instant invention). Massmann et al. teach that 94 g of polyoxyethylene (20) tallowamine surfactant was added to the ammonium glyphosate paste with further mixing. Massmann et al. further teach the resulting paste was extruded through an extrusion die to form granules, which were dried in a fluid bed dryer. Massmann et al. teach the resulting dried granules had moisture content of about 0.5% of weight (claim 10, water content, 0.1-2%, instant invention) and contained, on a water free basis, 80.7% by weight ammonium glyphosate. Massmann et al. teach that normally in a substantially enclosed reaction chamber the temperature of the reaction mass and the resulting ammonium glyphosate paste is close to 100° C (page 13, lines 6-7) (claim 9, reaction temperature, instant invention).

It is noted that all of the specific parameters of the instant invention are not taught by the reference, however, the adjustment of particular conventional working conditions (e.g., determining result effective amounts of the components beneficially taught by the cited references), is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan.

Accordingly, this type of modification would have been well within the purview of the skilled artisan and no more than an effort to optimize results.

Ascertainment of the difference between the prior art and the claims (MPEP 2141.02)

Massman et al. do not teach the use of an organic solvent in the reaction. It is for this reason Hu et al. is joined.

Hu et al. teach a process for synthesizing ammonium glyphosphonate includes adding alcohol, ether, arylhydrocarbone and alkylhydrocarbon or organic solvent-water (claim 1, organic solvent and water, instant invention) mixture to reactor, adding glyphosate (claim 1, glyphosate, instant invention) and ammonia gas (claim 1, ammonia gas, instant invention), reaction temperature as 10-50 °C (claim 9, reaction temperature 30-100°C for 2-8 hours, then cooling to 15-20°C, taking the precipitated crystal and drying to obtain the solid ammonium glyphosphonate (claims 1 and 11, crystallizing and drying, instant invention). Hu et al. teach organic solvents such as methanol and ethanol can be used at 25% weight per weight (page 2, paragraph 6) (claims 2-5, organic solvents and weight ratio, instant invention). Hu et al. teach returning the mother liquid to the system for reusing it 6-15 times, and distilling the last mother liquid to obtain ammonium glyphosphonate (claims 11-12, mother liquid distilled returned back to the reaction process) (Abstract).

Finding a prima facie obviousness

Rationale and Motivation (MPEP 2142-2143)

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Hu et al. and Massmann et al. to produce solid ammonium glyphosate. As taught by Massmann et al., preparing a mixture that permits superior mixing of reactants generates ammonium glyphosate in a form that is readily suitable for blending with surfactant and extrusion to form dry water-soluble or water-dispersible granules. Hu et al. teach a simple process of extracting solid ammonium

glyphosphonate using glyphosate, ammonia gas, an organic solvent and water. As taught by Hu et al., not only is the process simple, it produces a high quality and high yield end product, that can be used further produce more ammonium glyphosphonate. In as much as each reference teaches the use of water as a solvent in the reactions, it would have been obvious to one of ordinary skill in the art at the time of invention to substitute an organic solvent, such as methanol or ethanol, in the reaction as cited by Massmann et al., as the solvent to produce the same end product, solid glyphosate. The manipulation of the solvent will not alter the end product, as the water content of the end products cited references is within ranges of the water content of the end product of the instant invention.

One of ordinary skill in the art at the time of invention would have been motivated to combine the teachings of Hu et al and Massmann et al. to easily produce high quality and high yield solid glyphosate. Given the state of the art as evidenced by the teachings of the cited references, and absent any evidence to the contrary, there would have been a reasonable expectation of success in combining the teachings of the cited references to produce a solid glyphosate that would have excellent storage and stability characteristics, and that can be used repeatedly to produce more ammonium to control unwanted vegetation.

None of the claims are allowed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gillespie et al., US Patent No. 5,633,397.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andriae M. Holt whose telephone number is 571-272-9328. The examiner can normally be reached on 9:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Stucker can be reached on 571-272-0911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Andriae M. Holt
Patent Examiner

SHELLEY A. DODSON
PRIMARY EXAMINER